ZOOLOGY.—Neotylenchus abulbosus *n. g., n. sp.* (*Tylenchidae, Nematoda*) *the causal agent of a new nematosis of various crop plants.*[1] G. STEINER, Bureau of Plant Industry.

During the last two years the nemic plant parasite, *Neotylenchus abulbosus* n. g., n. sp., has been observed in strawberry plants affected by so-called "yellows" or "xanthosis," received from Mr. Harold E. Thomas of California; in strawberry plants from Wisconsin and from Germany; in potatoes in ships' stores from England, Holland, Norway, and New Brunswick, Canada; and in carrots from England and Sweden. The form at first sight resembles *Tylenchus dipsaci*, and it is probable that it has sometimes been mistaken for it. The present paper gives the result of a single experiment, and a summary of observations, and morphological and taxonomic data concerning the new genus and species.

In strawberry plants this nema occurs in the bud,—between the folded leaves and stems,—and also in the developed stems and leaves, and is undoubtedly an endoparasite. In the above mentioned California plants, the nemas were extremely numerous in brownish, blackish or yellowish spots of the leaves. We have not yet been able experimentally to produce such spots, but the single negative experiment is not conclusive.

The Wisconsin strawberry plants, were somewhat dwarfed and looked abnormal, without exhibiting very special symptoms; they contained this nema only in small numbers. A lot of strawberry plants imported from Germany seemed to be 100% infested; they had, however been packed close together in transit. The few old leaves present exhibited brown spots or decayed parts. Young tender leaves had developed, though they were not completely unfolded. Nemas were found in their tissues, and in the bud between developing leaves. Some of the leaf stems seemed to be slightly swollen, apparently because of the infestation. It is therefore impossible at the present time to describe satisfactorily clear-cut symptoms of this nemic disease on the strawberry plant.

The carrots seen exhibited sunken areas, which, however, were filled with decay; no green parts have been available for study. The potato tubers also were too decayed when received to allow specific symptoms to be recognized, though the appearances seem much like those pro-

[1] Received November 20, 1931.

duced by *Tylenchus dipsaci*. Certain areas were sunken and the tuber tissues exhibited a mealy appearance.

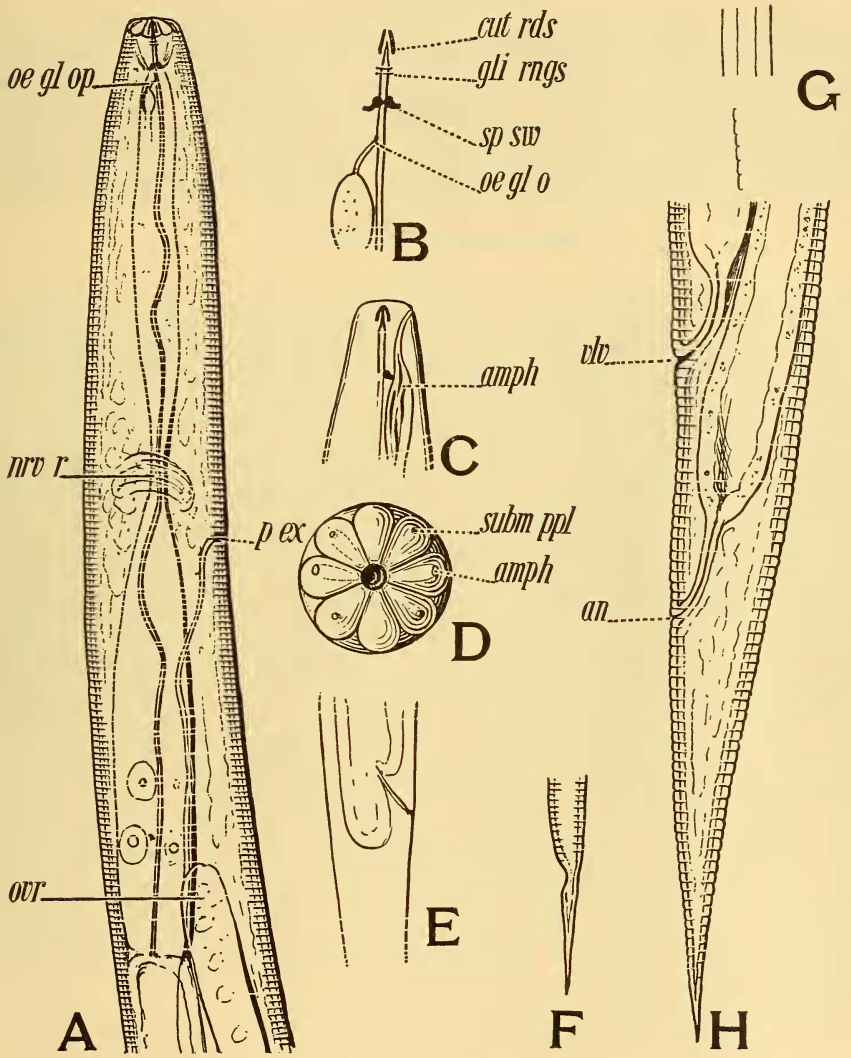

Fig. 1. *A*. Sketch of the anterior end; *B*, of the spear; *C*, amphid; *D*, head on end; *E*, anal region of a specimen with caecal extension of the intestine; *F*, tail end; *G*, lateral wings showing nature of crenation; *H*, posterior end. All ×530 except "D" which is ×1075. The abbreviations are mostly self explanatory; *oe gl op*, opening of dorsal oesophageal gland; *cut rds*, cuticular rods of the framework in the lip region; *gli rngs*, gliding rings of the spear; *sp sw*, swellings at base of the spear.

It is considered probable that this nema has a wide geographical distribution; but it appears at present to be a temperate zone species.

Neotylenchus n. g.

Diagnosis. Genus very similar to Tylenchus, but differing in the complete absence of a median oseophageal bulb, the oesophagus having a pronounced central constriction encircled by the nerve-ring, the anterior portion being somewhat spindle-shaped, the posterior one somewhat sugarloaf-shaped. Head, seen from in front, divided into eight sectors (instead of six as in *Tylenchus, Paraphelenchus, Aphelenchus, Pathoaphelenchus,* etc.,)—a dorsal, a ventral, two lateral and four submedial. Male unknown. Type species:

Neotylenchus abulbosus n. sp.

Fig. 1

Diagnosis. Neotylenchus with the characters of the genus; swellings or knots at the base of the spear with short, outward-pointing, curved processes.

Further notes on the species. The female is very similar to that of *Tylenchus dipsaci.* It is, however, noticeably thicker (compare formula below). The cuticle is annulated. The lateral wings are four in number, crenate in harmony with the cuticular annulation and arranged as shown in fig. 1G. The head end is not set off, as it is in *Tylenchus dipsaci,* and is more obtuse and broader; the tail is similar, sharply pointed, the terminus varying somewhat (figs. 1F and H). In spite of the presence of eight sectors on the front of the head, there seem to be only four submedial papillae. Fig. 1C shows a sketch of the profile view of an amphid. The spear is not strong, and is rather short; its basal swellings or knots are very characteristic, each having a small, outward-pointing, curved process for the attachment of protrudor muscles (Fig. 1B). In the lip region proper the spear is surrounded by short, longitudinal, cuticularized rods forming a kind of guiding frame. The species is easiest determined by the basal swellings of the spear. As in the true *Tylenchus* species, there is a dorsal outlet of the oesophageal glands into the oesophageal canal just back of the spear. It seems that the oesophageal cells lie within the oesophageal tissus, the posterior portion of the oesophagus being quite swollen. The oesophageal canal seems to be continuous, without any valvulae. No cardia was seen. The posterior end of the intestine sometimes forms a short blind sac, extending a little behind the anal opening (fig. 1E). The excretory pore is just behind the nerve-ring. A long canal leads inward and backward, the renette cell apparently being quite a distance behind the beginning of the intestine. *Neotylenchus abulbosus* is prodelphic, the ovary extending sometimes as far forward as the excretory pore. *Neotylenchus abulbosus* is apparently a syngonic species.

Measurements: Average of three females that showed very slight variations.

			67.		
1.4	9.3	18.	−85.	90.5	0.76 mm.
2.0	3.7	4.1	3.7	3.0	